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**Title :** SIZE DIFFERENCES BETWEEN TWO POPULATIONS OF SPERM WHALES: APPLICATION OF A SIMPLE TECHNIQUE TO MEASURE SPERM WHALES AT SEA

**Category :** Ecology

**Student :**

**Preferred Format :** Oral Presentation

**Abstract :** Knowledge of whale size (as related to age) is important to ecological studies. However, photographic techniques to measure sperm whales traditionally require high vantage points or a complicated stereo system. Furthermore, both techniques have errors, partly due to whale flexibility, and require an alongside-approach that often prevents individual identification. For simple and fast size measurements at sea, I used a laser range finder with digital camera to obtain distance to the fluke at the same time as photo-identification. The camera/lens and laser range finder were calibrated on objects of known lengths, and precision was determined by repetitively measuring known sperm whales. The coefficient of variation (CV) for test objects was low (CV=0.56%). Off Kaikoura, New Zealand, ten sperm whales were measured on up to 14 different occasions, and the CV was lower (CV=1.38%) than for other techniques (CV=4.4 to 5.1%). A polynomial regression of fluke width to total length from whaling data (after removing 9 outliers, or 15% of 59 whales) yielded an  $r^2$  of 0.89. This technique was applied to two populations of female and immature sperm whales in the Gulf of Mexico (GoM) and Sea of Cortez (SC). Eleven individuals were measured over two weeks in the GoM, at mean length of 8.8 meters. In the SC, 55 individuals were measured in a 4-week period, at mean length of 10.8 meters; the data suggest that the population in the GoM is made up of smaller animals than that of the SC. Although, the relationship between fluke width and total length is not as good as between blow hole/dorsal fin and total length, the low CV of this efficient and low-cost technique makes it just as precise. However, some individuals with large missing tips or very curved flukes, about 15% of the population, cannot be measured in this manner.